

WHAT IS CLAIMED IS:

1. A high-pressure mercury lamp comprising:
 - a transparent envelope made of quartz glass, in which mercury,
 - 5 halogen, and a rare gas are sealed; and
 - a pair of electrodes provided in the transparent envelope,
 - wherein an amount of the halogen sealed in the transparent envelope
 - is in a range from $1.0 \times 10^{-6} \mu\text{mol}/\text{mm}^3$ to $1.0 \times 10^{-2} \mu\text{mol}/\text{mm}^3$, and 2.5 mol%
 - to 25 mol% of oxygen with respect to the amount of the halogen is present in
 - 10 the transparent envelope.
2. The high-pressure mercury lamp according to claim 1, wherein the halogen is bromine.
- 15 3. The high-pressure mercury lamp according to claim 1, capable of performing a light control operation in which the high-pressure mercury lamp is operated at a power lower than a rated power.
4. The high-pressure mercury lamp according to claim 3, wherein the power
- 20 lower than the rated power is a power not more than 85% of the rated power.
5. The high-pressure mercury lamp according to claim 3, wherein the rated power is 200 W or more.
- 25 6. The high-pressure mercury lamp according to claim 5, wherein the transparent envelope is substantially spherical or substantially spheroidal,
- the pair of electrodes are arranged so as to substantially face each other, and
- 30 the following relationships are satisfied:
$$L \leq 2.0 \text{ mm}, r/L > 5$$
where L (mm) denotes a distance between the electrodes and r (mm) denotes a maximum inner diameter of the transparent envelope in the longitudinal direction of the electrodes.
- 35 7. The high-pressure mercury lamp according to claim 1, wherein a content of potassium in the electrodes is not more than 10 ppm.

8. A lamp unit comprising:
a concave reflecting mirror; and
the high-pressure mercury lamp according to claim 1 attached to the
concave reflecting mirror,
- 5 wherein the high-pressure mercury lamp is attached so that a
midpoint between the pair of electrodes substantially coincides with a focal
position of the concave reflecting mirror.
9. An image display device comprising:
- 10 the lamp unit according to claim 8;
a circuit for operating the high-pressure mercury lamp included in
the lamp unit;
converging means for converging light emitted from the lamp unit;
image forming means for forming an image using the light converged
- 15 by the converging means; and
projecting means for projecting the image formed by the image
forming means on a projection member.